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Understanding Credit Derivatives and Related Instruments

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To Kimberly, Sarah, and Emma.

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Part I

Credit Derivatives: Definition, Market, Uses

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Credit Derivatives: A Brief Overview

In this chapter we discuss some basic concepts regarding credit derivatives. We start with a simple definition of what is a credit derivative and then introduce the main types of credit derivatives. Some key valuation principles are also highlighted.

1.1 What are Credit Derivatives?

Most debt instruments, such as loans extended by banks or corporate bonds held by investors, can be thought of as baskets that could potentially involve several types of risk. For instance, a corporate note that promises to make periodic payments based on a fixed interest rate exposes its holders to interest rate risk. This is the risk that market interest rates will change during the term of the note. For instance, if market interest rates increase, the fixed rate written into the note makes it a less appealing investment in the new interest rate environment. Holders of that note are also exposed to credit risk, or the risk that the note issuer may default on its obligations. There are other types of risk associated with debt instruments, such as liquidity risk, or the risk that one may not be able to sell or buy a given instrument without adversely affecting its price, and prepayment risk, or the risk that investors may be repaid earlier than anticipated and be forced to forego future interest rate payments.

Naturally, market forces generally work so that lenders/investors are compensated for taking on all these risks, but it is also true that investors have varying degrees of tolerance for different types of risk. For example, a given bank may feel comfortable with the liquidity and interest rate risk associated with a fixed-rate loan made to XYZ Corp., a hypothetical corporation, especially if it is planning to hold on to the loan, but it may be nervous about the credit risk embedded in the loan. Alternatively, an investment firm might want some exposure to the credit risk associated with XYZ Corp., but it does not want to have to bother with the interest risk inherent in XYZ's fixed-rate liabilities. Clearly, both the bank and the investor stand to gain from a relatively simple transaction that allows the bank to transfer at least some of the credit risk associated with XYZ Corp. to the investor. In the end, they would each be exposed to the types of risks that they feel comfortable with, without having to take on, in the process, unwanted risk exposures.

As simple as the above example is, it provides a powerful rationale for the existence of a rapidly growing market for credit derivatives. Indeed, credit derivatives are financial contracts that allow the transfer of credit risk from one market participant to another, potentially facilitating greater efficiency in the pricing and distribution of credit risk among financial market participants. Let us carry on with the above example. Suppose the bank enters into a contract with the investment firm whereby it will make periodic payments to the firm in exchange for a lump sum payment in the event of default by XYZ Corp. during the term of the derivatives contract. As a result of entering into such a contract, the bank has effectively transferred at least a portion of the risk associated with default by XYZ Corp. to the investment firm. (The bank will be paid a lump sum if XYZ defaults.) In return, the investment company gets the desired exposure to XYZ credit risk, and the stream of payments that it will receive from the bank represents compensation for bearing such a risk.

It should be noted that the basic features of the financial contract just described are becoming increasingly common in today's financial marketplace. Indeed these are the main characteristics of one of the most prevalent types of credit derivatives, the *credit default swap*. In the parlance of the credit derivatives market, the bank in the above example is typically referred to as *the buyer of protection*, the investment firm is known as *the protection seller*, and XYZ Corp. is called *the reference entity*.[1]

[1] The contract may be written either to cover default-related losses associated with a specific debt instrument of the reference entity or it may be intended to cover defaults by a range of debt instruments issued by that entity, provided those instruments meet certain criteria, which may be related to the level of seniority in the capital structure of the reference entity and to the currency in which the instruments are denominated.

1.2 Potential "Gains from Trade"

The previous section illustrated one potential gain from trade associated with credit derivatives. In particular, credit derivatives are an important financial engineering tool that facilitates the unbundling of the various types of risk embedded, say, in a fixed-rate corporate bond. As a result, these derivatives help investors better align their actual and desired risk exposures. Other related potential benefits associated with credit derivatives include:

- Increased credit market liquidity: Credit derivatives potentially give market participants the ability to trade risks that were previously virtually untradeable because of poor liquidity. For instance, a repo market for corporate bonds is, at best, highly illiquid even in the most advanced economies. Nonetheless, buying protection in a credit derivative contract essentially allows one to engineer financially a short position in a bond issued by the entity referenced in the contract. Another example regards the role of credit-linked notes, discussed in Chapter 12, which greatly facilitate the trading of bank loan risk.

- Potentially lower transaction costs: One credit derivative transaction can often stand in for two or more cash market transactions. For instance, rather than buying a fixed-rate corporate note and shorting a government note, one might obtain the desired credit spread exposure by selling protection in the credit derivatives market.[2]

- Addressing inefficiencies related to regulatory barriers: This topic is particularly relevant for banks. As will be discussed later in this book, banks have historically used credit derivatives to help bring their regulatory capital requirements closer in line with their economic capital.[3]

These and other applications of credit derivatives are discussed further in Chapters 2 and 3. They are largely responsible for the impressive growth of the market, more than offsetting the potentially growth-inhibiting influence of the so-called asymmetric-information problems that are often inherent in the trading of credit risk.[4]

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[2] An important caveat applies. Obviously, whether or not the single transaction actually results in lower costs to the investor than the two combined transactions ultimately depends on the relative liquidity of the cash and derivatives markets.

[3] The notions of regulatory and economic capital are discussed in greater detail in Chapters 3 and 25.

[4] Asymmetric-information problems and the related phenomena of moral hazard and adverse selection are discussed in Chapters 14 and 24.